BRIEF REPORTS

Use of Skype to Educate Underprivileged Blind Children in India: Motivations, Barriers and Teaching Strategies

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ABSTRACT

Purpose: *The primary objective of the study was to explore the barriers that volunteers face and the strategies they employ when teaching blind children via Skype. It also attempted to understand the difference in methodologies used in teaching blind children and other underprivileged children.*

Method: *In February and March 2013 an online survey was conducted with 8 volunteer teachers who work with two development programmes in South India, supported by the Ann Foundation, a non-government organisation based in New York, United States.*

Results: *Volunteers find that teaching blind children through Skype is challenging as well as rewarding. Poor internet connectivity in the remote villages of the country is a major technical barrier. The interaction barriers are lack of advanced learning devices and specific teaching expertise to maintain the children's interest in learning. Strategies to enhance learning among the blind children included the use of contemporary topics, fun activities, songs and storytelling.*

Conclusion: *There are a unique set of barriers when teaching blind children through Skype. While most of these can be overcome with facilitatory learning approaches, volunteer teachers continue to struggle with the barriers of poor internet connectivity and reluctance on the part of blind students to participate in the class.*

Limitations: *The sample size was small, numbering only 8 volunteers who, however, provided many insights. Since they were based in different parts of the world, it was not possible to conduct one-to-one interviews, which might have yielded more information.*

Key words: *blind, underprivileged, education, India*

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INTRODUCTION

Online education is both challenging and interesting. With face-to face interaction, there are many methods to keep the students engaged and interested. However, in the online system of education, there is need for more intensive strategies to effectively put forth ideas and concepts (Rheingold, 2001). Roblyer and Wiencke (2003) have mentioned the different important components in distance (online) education, one of them being student-teacher interaction. The report by Collison et al (2000) explained the pros and cons of online education, and strategies to make it more effective. Some of the problems encountered during online teaching were insufficient participation in class from the students, and the difficulty in connecting with them, as well as the appropriate tone for the teacher to use. The use of advanced technology to teach students based in different parts of the globe has gained popularity in recent times, especially when teaching underprivileged and special children (Raghuveer and Rajan, 2012). "The deployment of the internet in the late 20th century dramatically expanded both the amount and types of information readily accessible to both students and faculty, effectively reducing the information divide between teacher and student" (Lom, 2012). In a study by Hanna et al (in press), facilitators who teach have reported technology to be a "dynamic force" with a lot of potential for online learning.

There has been exhaustive research on children with special needs like cerebral palsy (Tella et al, 2011; Shanbhag and Krishnamurthy, 2012; Lee and Chon, in press), epilepsy (Gbiri and Akingbohungbe, 2011; Blocher et al, 2013; Hrabok et al, 2013), hearing impairment (Sarkar and Rout, 2012; Martin et al, 2013), Down syndrome (Nadkarni et al, 2012; Galeote et al, 2013; Galli et al, in press), and language impairments (Chakravarthi, 2012; Hesketh and Conti-Ramsden, 2013; Przybylski et al, 2013). However there has not been much research on the education of blind children. A study on 779 blind and low vision students in Nepal (Gnyawali et al, 2012) concluded that intervention in the form of optical devices was necessary, and print reading using Braille should be encouraged. In another study it was observed that there is need for improved services for blind children in Nigeria (Okoye et al, 2009).

The visually impaired form a special part of the population in India, and it has been seen that community based rehabilitation has helped in improving their quality of life (Vijayakumar et al, 2004). In a country with limited resources, it is of utmost importance to devise cost- effective strategies to educate and rehabilitate the blind population, especially children. Hence it would be interesting to use

novel and cheap methods of education to empower them. Use of technology (like Skype) is gaining widespread importance as it can reach people without location constraints. However, online teaching of special children with low or no vision has certain unique problems. This study attempted to differentiate between the problems (if any) encountered when using Skype to teach underprivileged students, and the specific problems that occur when teaching blind children (eg. interaction barriers).

OBJECTIVES

The primary objective of the study was to understand the barriers that volunteers face, and the strategies employed when Skype technology is used to teach blind children. Secondly, an attempt was made to note the difference in methodologies used while teaching blind children and while teaching other underprivileged children.

METHOD

A Non-Governmental Organisation (NGO), the Ann Foundation, based in New York, United States, was contacted for data collection. In South India, this Foundation runs two programmes for blind children, using Skype to empower them with English language skills, improved communication skills and confidence. One programme is run in Kerala and the other in Tamil Nadu. Volunteer teachers are recruited through advertisements in the United Nations Volunteer (UNV) Online Volunteering Service. Ann Foundation interviews and recruits the volunteers for the project. A manager is appointed to monitor each project through weekly emails, and biweekly to monthly conference calls. The other projects from where the subjects were recruited were those for underprivileged children in Uttar Pradesh and Andhra Pradesh states. Written permission was obtained from Ann Foundation to interview the volunteer teachers who were part of this project. Informed written consent was also taken from the volunteers prior to data collection.

Tools

A survey tool was constructed after in-depth discussions with 5 teachers who use online technology to teach special children. It was validated by an expert in the field. These teachers were not part of the survey sample.

The tool consisted of 3 sections:

Section 1- Background information

Section 2- Motivation, achievements and strategies used for teaching

Section 3- Barriers faced during teaching.

Data Collection

Data collection took place in the months of February and March 2013. The survey tool was sent to the manager of the blind children's project and to managers of other projects supported by Ann Foundation for underprivileged children. The volunteers were then sent an email containing links to the survey, including information about the research. It was a blind study, where the researcher did not know the respondents.

Sample Size

There were 6 volunteer-teachers in the Skype project for blind children. However, one was unavailable as she was travelling, so data were collected from 5 volunteer teachers in the blind children's project and an equal number from the underprivileged children's project. The total sample size was 10 volunteers.

Ethical Considerations

Written permission was obtained from the NGO, and approval was sought once the tool was developed and validated.

RESULTS

Only 8 out of 10 volunteer teachers completed the online survey. The remaining did not respond to the researcher's mails. Overall, there were 4 volunteer-teachers who taught underprivileged blind children (BLIND GROUP=BG) and there were 4 who taught underprivileged children without disability (NON BLIND GROUP=NBG). These volunteer-teachers were Indians, based all over the world. They did not leave any questions unanswered.

Section 1 - Background information

All the volunteer teachers in the BG were females, with an average age of 32 (± 5) years. Of the 4 volunteer teachers, 2 had less than 6 months of experience in teaching blind children, 1 had between 6 months - 1 year, while another had 1 - 2 years of experience. All 4 were graduates with a technical background. All of them spent 2 or more hours every week on teaching the blind children. In the NBG, 3

out of 4 volunteer teachers were females, with an average age of 28 (± 4) years. Two of them had 6 months -1 year experience teaching underprivileged children through Skype, while 2 others had 1 – 2 years of experience. All 4 were graduates with a technical background. Three of the volunteers taught the students for 1 hour every week, while only 1 volunteer taught for more than 2 hours.

Section 2 - Motivation, achievements and strategies used for teaching

Motivation

The major motivation behind volunteering to teach (for both BG and NBG) was to facilitate economic and social development of underprivileged communities. Teaching blind children was considered to be challenging and was seen as a way to achieve personal growth.

Achievements

The achievements common to volunteer teachers in both the groups were the increased interest shown by students in the Skype sessions, along with improved confidence and eagerness to learn.

In the words of one volunteer teacher, *"It was a realisation indeed that they (blind children) were no different from others, for they perceive rather than see. I never hesitate to use the word 'see' for they know what it means, for perception is more powerful than vision"*. On being asked to cite any particularly positive experience that really moved them, 2 of the 4 volunteer teachers (who taught for at least 2 hours every week and had more than 1 year experience with blind children) had nothing to share, and mentioned that they still had a long way to go. One BG teacher mentioned that the students wished they could meet her in person. Another BG teacher said, *"I really do not know if I have made any difference, but then, in teaching one of our blind school projects in Kerala, I had this inspiring feeling. I used to teach two batches comprising Upper Primary (UP) and High School (HS) on alternate days. Whenever the class is scheduled for the HS, the UP section also joins them and when interrogated, they said (they) do not want to miss my class even if it is for others and that's just to hear me. This, I feel, is not because of the stuff but the bond, and find them all improving fast in their speaking skills."* Another interesting quote from a teacher was, *"A blind student recited a poem written specifically for me. The poem described the impact I had on her life and how I had motivated her to pursue higher studies."*

When questioned about any particularly touching experience, a NBG volunteer teacher commented, *"I used to teach English to a 6-year-old boy. Since he was fond of dinosaurs, I used to make fun-learning activities for him based on dinosaurs; this helped in keeping him focussed on the lessons."* Another NBG teacher said, *"The sentence building exercise often has kids wondering on what to frame sentences around. It is very satisfying when kids frame sentences telling you how much they like learning from you, sitting in your class or even just talking to you."*

Teaching strategies

The respondents were given multiple options to choose from (Table 1).

Table 1: Teaching strategies used
(expressed as percentage of volunteers using a particular teaching strategy)

Teaching strategies	BG	NBG
Student centred activities	100%	100%
Facilitation and moderating	75%	25%
Problem-based learning	25%	50%
Collaborative learning	75%	100%
Peer evaluation	25%	25%

Each respondent could choose more than one option. They were also given space to mention other comments. One BG volunteer teacher mentioned that she encourages them to *"unleash what is inherently learnt"* so that they do not see communication as a skill to be newly learnt, but as a skill already present which needs refinement.

The respondents were asked to mention the methods that they use in order to improve the effectiveness of online teaching (Table 2).

Table 2: Methods used to improve online effectiveness
(expressed as percentage of volunteers using a particular method)

Methods	BG	NBG
Providing timely and meaningful feedback	50%	75%
Creating learning activities that engage students	75%	75%
Keeping students interested and motivated	100%	75%
Ensuring students interact with each other	50%	100%
Encouraging students to be critical and reflective	25%	75%

One of the BG volunteer teachers commented, *"Online teaching, according to me, gets effective in letting the learners know how personally I know them all and distance is not a hurdle to evaluate or understand a person. Being friendly and not getting into the shoes of a teacher is another way to reach out to students."*

Section 3 - Barriers faced during teaching

The volunteer teachers were asked to mention the barriers that they face while teaching. On the subject of technical barriers, both groups mentioned internet connectivity issues and difficulties in addressing and keeping a large class attentive. In addition, since the web camera could not pan through the entire class, the volunteer teacher was unable to see all the students at once. The specific technical barrier faced by the BG volunteer teachers was lack of advanced devices (meant for the blind) that aid in better understanding of concepts.

The common organisational barriers were less time for classes and irregular attendance in class. The BG volunteer teachers mentioned specific organisational barriers. They were of the opinion that specially trained sighted volunteer teachers could not do as good a job as blind volunteer teachers. It was difficult for them to understand "all" the needs of the blind students. Hence, it was suggested that professionally trained volunteer teachers or blind teachers should be involved in the education of the visually impaired children. In addition, there were communication gaps at various levels (between the volunteers and the centre, between the centre and the project coordinator, and between the project coordinator and the volunteers). Some of the suggestions were to have a high-level overview of the programme, clearly defined objectives and goals, teaching aids and tips, effective and alternate ways to connect with students because face to face/eye contact was not possible on a 'one to many' Skype conversation, and regular team meetings.

Regarding the problem of keeping children interested in the teaching, volunteer teachers of both the groups reported on the different levels of understanding and maturity among the students, despite being of the same age and in the same class, and how they were easily distracted. The strategies used by the BG volunteer teachers were few (teach from the basics and involve other children in the discussions while talking to one student), in comparison to strategies that could be used by the NBG volunteer-teachers (involvement of school administration and parents, repetition and use of local language, and showing videos to make them interested in the lesson).

Asked about the difficulty in inspiring children to continue learning, the volunteer teachers in both the groups mentioned different barriers. The BG volunteer teachers were of the opinion that the blind students were self-conscious about speaking up, for fear of making a mistake, and it was challenging to make them relax. It was also difficult for the students to maintain continuity with the classes. The strategy used to overcome this barrier was to customise the lessons to the interests of the students and make learning more interactive through songs and games, which might not be part of the curriculum. The NBG volunteer-teachers reported that it was relatively easy to keep the children interested and they often involved parents to encourage students to continue learning.

Both the groups appeared to use similar strategies to enthuse children about the subject matter. Some of the common methods were: talking about contemporary subjects, telling stories, conducting fun activities, and dividing the class into groups for different activities. In particular, the BG volunteer teachers mentioned that it was important to approach the topic as a "co-learner" rather than as a teacher. One of the volunteer teachers stated, *"Learning along with the children is the best strategy that should work in this perspective of teaching. Approaching the topic as a co-learner rather than a teacher; this way helps a lot in achieving what I want."* Another example given by the BG volunteer teacher was, *"I keep telling them stories. So when I am teaching them the word 'bowl', I tell them that Palakkad* (district name) *is the rice bowl of Kerala* (state name). *When I teach them the word 'pepper', I tell them it used to be called black gold, at one point of time. When I teach them the word 'eagle', I tell them about a king who used an eagle to carry messages."*

The next question focussed on the strategies used to establish good rapport with the children. Both the groups were of the opinion that the best way to build strong connections with the students was to remember personal details like their names, interests, background, favourite food, and recreational habits. While one BG volunteer teacher said, *"I personally make notes about children, their special skills, their likes and dislikes and their challenges. I try to have a few minutes of 1:1 time with these kids at the beginning of each session. I would love to be at a state where I've established a strong connection with each of my students in the class".* A NBG volunteer teacher reported, *"To establish a good connection it is important to know what they do in their day-to-day life. I do spend time just talking to at least two students at the end of the class. Asking them what they did, if there was anything funny or interesting that happened to them. These days, kids share details with me - like they have puppies in the house upstairs, etc."*

DISCUSSION

This study aimed to gain insights into the specific barriers encountered by volunteers, as well as the different strategies they employ when Skype is used as a medium to teach blind children. It was found that despite certain similarities between the two groups, there were some motivations and barriers specific to the volunteers teaching blind children. An earlier article by the author (Rajan, 2012) emphasised the benefits of volunteering for the enhancement of underprivileged communities. In developing countries, volunteerism has been extensively studied in the field of medicine and the major motivation for it is the desire to contribute to a social cause (Rankin, 2002; Rinsky, 2002; Matar et al, 2012). In this study also, volunteering to teach underprivileged children in remote villages of the country was reported as a way to give back to the community. Teaching blind children, in particular, was perceived to aid personal growth. It was observed that blind children appreciate the efforts of the volunteer teachers more than the sighted children do. One blind child expressed his gratitude to the teacher through the medium of poetry. This could be one of the reasons why the volunteers feel more satisfaction about teaching blind children.

As for teaching strategies, it was seen that student-centred activities and peer evaluation were used equally, irrespective of the group of students being taught. Student-centred activities tend to keep the children engaged and interested in the topics covered, apart from imparting knowledge and ensuring continued participation (Lom, 2012). Collaborative and problem-based learning were not used much with blind children, and the focus instead was on facilitation and moderation. It has been seen that use of local language and giving examples of association facilitate better learning (Cunillera et al, 2010). This was one of the strategies used by the BG volunteer teachers. In addition, facilitatory learning has been shown to improve knowledge organisation and evaluation, exploration and reasoning, and self-learning and self-assessment (Kanter, 1998). Student interaction and critical reflective thinking methods to improve online teaching seemed to be less among the BG volunteer teachers. This could be because of lack of expertise, reserved nature of the students or perhaps because they followed the old school technique (of recitation and memorization) to reduce disruptive class behaviour (Way, 2011).

A look at technical barriers revealed that there was a need for advanced devices to make learning easier for blind children (since the internet connectivity in remote villages in the country was not good). Services for the blind children in

developing countries need to be improved (Pal et al, 2006; Ntim-Amponsah and Amoaku, 2008; Okoye et al, 2009). In addition, a need was expressed to involve blind volunteer teachers as they would be better able to understand the problems that blind children face than professionally-trained sighted teachers. While it has been seen that getting a high speed internet connection that could support video conferencing is difficult, especially in the interior regions, probably 3G internet connections would be more helpful in aiding hassle-free video chats (Pappas, 2010). One of the useful suggestions made by a volunteer teacher was to switch between browsers (like from Skype to Google video) to help with internet connectivity issues.

Strategies such as fun activities, songs, puzzles and discussing contemporary topics were commonly used to make children enthusiastic about the subject matter and build a good rapport with them. In a recent study by Chan (2013), it was seen that with the use of innovative approaches to learning (like songs, poems and role plays), there seemed to be a better grasp of things, without losing interest in the subject. Use of story building and telling (done by a volunteer in BG) could be perceived as a good strategy (Treadwell et al, 2011) to enhance interest in the subject matter and also improve the class solidarity, especially considering the fact that the blind children were reluctant to open up. Involvement of parents in the teaching-learning process was also perceived to be an important strategy to ensure continued learning. This has been supported by research on parent-teacher relationships and its importance in child behaviour and function (Kim et al, 2013). One important finding was that volunteers teaching the sighted students at times played videos to maintain the children's interest, a technique which could not be used by those teaching blind students. They used songs and storytelling instead.

Thus, it can be said that the volunteers who use Skype to teach blind children face a unique set of barriers. The solutions for some of these are easy to implement. However, the need for blind volunteer teachers to teach blind children was emphasised. Special efforts had to be made to inspire the shy and reserved blind children to continue learning. Nevertheless, volunteer teachers found the experience very rewarding, and the sense of giving back to society was strong.

CONCLUSION

Volunteers who use Skype to teach blind children find the process challenging as well as rewarding. The confidence levels of the blind children reportedly showed

improvement over a period of 1 year. The major technical barrier was poor internet connectivity in the remote villages of the country, while specific interaction barriers included lack of advanced learning devices and specific teaching expertise to keep the children interested and inspire continued learning. The strategies used to enhance learning and maintain enthusiasm among the blind children included use of contemporary topics, fun activities, songs and storytelling. The volunteers also made special efforts to remember minute personal details, in order to build rapport with the children.

Teaching blind children through Skype poses certain unique barriers. While most of these can be overcome by employing facilitatory learning approaches, volunteers continue to struggle with barriers of poor internet connectivity and the blind students' reluctance to participate in class.

Limitations

The sample size was small. There were only 8 volunteer teachers. However, they provided many insights. Since they were based in different parts of the world, it was not possible to conduct one-to-one interviews which might have yielded more information.

Implications

It is important to devise cost-effective strategies to educate underprivileged blind children. One of the ways to achieve this could be with help from volunteer teachers and online technology like Skype.

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